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APPORTION OR DIVERT? THE JFC'S DILEMMA: ASSET AVAILABILITY FOR TIME-SENSITIVE TARGETING

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract
Joint Force Commanders have shown a keen interest in Time-Sensitive Targets (TST) and the process used to attack them. Determining how best to provide assets in order to hold TST's at risk has become a source of disagreement among and within services. Yet, discussion most often remains focused at the operational-tactical level, especially on C4ISR equipment and links between them. The targeting process already includes specific venues appropriate to a higher-level examination of the JFC's intent with regards to the threat and opportunities presented by TST. The Joint Targeting Coordination Board is one such venue. There, the AOC's Strategy Division can solicit the JFC's TST guidance and present options for providing assets for use against TST. The primary methods will either be apportioning dedicated assets to TST or utilizing clear priorities for diverting assets already planned against other targets. A number of key questions must be answered and then presented to the forces in an easily-understandable manner. The Air Operations Directive (AOD) provides such a vehicle, if the JFC's answers are included within it.

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Introduction

Of the many topics contained in an Operations Order, one that is almost certain to receive the continuing, personal attention of the Joint Force Commander (JFC) is the annex containing Time-Sensitive Targeting (TST). From exercises to operations, across services, TST has come to symbolize both the promise and threat of the future. Defining what, exactly, "Time Sensitive Targets" are, how and why they should be attacked, and what tradeoffs are appropriate, have become not only a subject for debate among services, warfighting commanders, and staffs, but tacticians, academics, and contractors, as well.

According to JP 1-02, Time Sensitive Targets are those "requiring an immediate response because they pose (or soon will pose) a clear and present danger to friendly forces, or are highly lucrative, fleeting targets of opportunity."[1] Within this definition, two categories of targets can be identified: those which present a "clear and present danger" and those which are "highly lucrative, fleeting targets of opportunity." This dual definition presents a problem when determining how to deal with TSTs, since the appropriate response may be different for each category. In fact, the target sets themselves will likely be different for each. A further difficulty is presented by the term "immediate," which is left undefined. Although the US Army generally views "immediate" as less than 72 hours, which matches nicely the Air Tasking Order (ATO) cycle, this definition is not included in JP 1-02, nor does "less than 72 hours" agree with most people's intuitive sense of "immediacy."[2]

Regardless of the target type, threat posed, or potential payoff, a useful way of viewing TST's is to consider them "the CINC's targets." That is, for the operator or tactician

[1] Joint Chiefs of Staff, DoD Dictionary of Military and Associated Terms, Joint Pub 1-02 (Washington, DC: 12 April 2001), 435

[2] 32d Army Air and Missile Defense Command (32 AAMDC) briefing to Eighth Air Force (8AF) personnel, 26 Mar 2001.

executing the commander's plan, how and why become less important than the notion that these targets must be hit, by any means available, *because the boss said so*.[3] At the tactical level, exercises and operations have both shown US forces have the ability to hit anything they can find on the battlefield.[4] Given this fact, it is incumbent on the operational staff to ensure the right process is in place to hit the right targets at the right time. Only with a clear understanding of the entire process can the staff present the commander with realistic, attainable options for prosecuting TST.

This paper will examine one portion of the TST process directly affecting the JFC—determining how the components should make assets available for TST prosecution. Even with the technological capabilities of new weapons, joint fires assets capable of attacking TST's will remain a limited asset. Therefore, it will fall to the JFC to determine priorities and provide guidance as to what those priorities are.

This paper's thesis is that the JFC should avoid apportioning assets solely to TST prosecution. Instead, *the JFC should direct components to develop flexible, responsive processes to* ***divert*** *assets from lower-priority previous tasking when TST's are discovered.*

In examining this thesis, certain guidance required of the JFC will also be identified. Obtaining these specifics will allow components to ensure their processes implement the JFC's intent, regardless of the apportionment method selected.

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[3] The US Army's 1st Battlefield Coordination Detachment described this philosophy to the AOC staff during Exercises Blue Flag 01-4 and Roving Sands 2001, both held at 8 AF headquarters, Barksdale AFB, LA.

[4] Blue Flag 01-2, Roving Sands 2001, and USAF Weapons School Mission Employment Phase (1998-2000), all of which the author participated in, successfully demonstrated the tactical ability to attack targets (including TST) once identified. An issue still remaining is the difficulty in "finding" real-world targets. Public reports on Operation Enduring Freedom suggest the value of humans as sensors in solving part of this problem.

Background

In practice, targets are designated as TST's by placing them on a list approved by the JFC. The initial TST list is usually contained in the Operations Order (OPORD), Annex C, "Operations," in the "Operational Fires" appendix.[5] All components provide input as to what target types could potentially have a critical effect on their activities. In some cases, specific targets may be listed, but authority to strike them is retained by the JFC. An example of such targets could include weapons of mass destruction (WMD).[6]

While including such targets as TST ensures their importance to the JFC is understood by components, forcing subordinate units to obtain permission to strike them will create delays in attack. This may or may not present a problem, as will be seen. In all likelihood, JFC's will continue to use this technique until a better solution is found. Although some issues will be addressed here, a full exploration of the WMD issue lies outside the scope of this paper.

In addition to the target-type listing, the OPORD normally contains the JFC's overall philosophy for TST prosecution, that is, the level of acceptable risk in terms of fratricide and duplication of effort. Although the OPORD may contain some specific guidance on these issues, such as waiving certain coordination requirements, the details of operational tactics are normally left to components.[7]

The generic definition contained in JP 1-02 makes it is entirely possible for virtually any target to be identified as a TST, given an appropriate scenario. In order to focus the

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[5] Joint Task Force 760 (JTF 760) Exercise Roving Sands 2001 Operations Order, Tab A to Appendix 16 to Annex C (Unpublished Exercise Documents, Suffolk, VA: Forces Command TRW Roving Sands Support Team), C-16-A-2.

[6] E-mail from JTF 760 Exercise Roving Sands 2000 Joint Operations Center watch officer to the author (JFACC liaison), o/a 19 Jun 2000, advising components on addition of WMD, but requiring CJTF approval prior to attacking them.

[7] On waiving coordination requirements, Exercise Roving Sands 2001 Operations Order, C-16-A-2.

discussion, this paper will primarily examine theater ballistic missiles (TBM), *not* because they necessarily pose the greatest threat or are the most appropriate TST's. Rather, TBM's will be used simply because they have certain characteristics useful for illustration and are well-understood across services.

The terms "time-sensitive" and "immediate" combine to suggest that TST attacks should occur very rapidly. In the past, USAF leadership has suggested "single-digit minutes"[8] and, more recently, less than 30 minutes from detection to destruction as appropriate measures of immediacy.[9] However, examining the TBM target set illustrates this need not always be the case.

A generic TBM force structure consists of a few garrison locations, which will contain the vast majority of targets during peacetime. Prior to hostilities, however, these forces will disperse to forward operating bases (FOB), which normally remain fixed for a period of time before moving again. Typically, a FOB will remain in place for no more than three days. From the FOB, missile transporters and other support vehicles move to forward operating locations (FOL), where they meet with transporter-erector-launchers (TEL's) and transload new missiles onto empty TEL's. An FOL will normally remain in place only long enough for the transload to occur—not more than a few hours. After leaving the FOL, the loaded TEL, along with support vehicles, then moves to another site in preparation for launch. Alternately, if the launch will not occur for some time, the TEL may move to an intermediate "hide site." Once the TEL moves to the launch location and erects the missile,

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[8] GEN John Jumper, USAF, quoted in Frank Wolfe, "Air Force Hopes to Reduce Time Critical Targeting to Minutes," Defense Daily, 48 (8 Sep, 2000), 1 and MG John A. Corder, USAF (Ret.), quoted in William B. Scott, "Experimental Center Nails Time-Critical Targets," Aviation Week and Space Technology, 14 (2 Oct, 2000): 70-72

[9] Combined Air Operations Center-X Innovation and Transition Plan for Time Critical Targeting Integration (Aerospace Command Control and ISR Center Strategic Forces Division (C2N), Langley, VA: 1 Jan 2001), 3.

check-out normally requires no less than 30-40 minutes from the time the TEL stops. Following launch, the empty TEL immediately moves, eventually returning to an FOL to receive a new missile.[10]

Other than erecting the missile, there is no obvious visual indication of the amount of time remaining until launch. Unless the TEL was observed halting, a TEL found with an erect missile could be 40 minutes or 4 seconds from launch. This situation is the one normally envisioned with TST—the erect launcher demanding the fastest possible response time. However, the preceding description reveals numerous other targets, properly categorized as TST, which remain in place for much longer periods of time—days, in some cases. By every definition, these targets are still properly categorized as "immediate."[11] Although counterintuitive, this is fortunate.

Timing—How Soon Is "Immediate?"

While the common vision of a thousand-sortie ATO seems to imply aircraft constantly cycling to targets, this is not actually the case. Strike aircraft are normally "packaged" in order to protect them from enemy defenses and to utilize support aircraft more efficiently. Additionally, typically half the sorties in an ATO are provided by support aircraft. As a result, the 500 (or so) strike sorties in a 1,000 sortie ATO might be gathered in packages of 20 aircraft, with one group of strikes per hour. Thus, if a TST is discovered, no asset may be available to prosecute it for some time. A possible solution to this problem is the use of assets on airborne alert, an option which will be examined in greater detail shortly.

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[10] Generic TBM laydown described by Capt Shannon M. Huffman, 32 AAMDC, to the author, during Exercise Roving Sands 2001. Note also that loaded TEL's observed moving may well be decoys, a significant targeting challenge. Empty TEL's, instead of being attacked, may be tracked back to an FOL, a more lucrative target.

[11] Joint Chiefs of Staff, Joint Doctrine for Targeting, Joint Pub 3-60 (Washington, DC: 17 Jan 2002), I-4. JP 3-60 characterizes as "immediate" any target not "preplanned." These targets also meet the definition of immediate from the Army doctrinal standpoint and the ATO cycle previously mentioned.

If multiple TST's are discovered, the available air assets could be used up very quickly, for hours into the future. In the example above, a FOB would likely be large enough to merit diverting an entire package, since it is the most lucrative target in the example. Even an FOL could use substantial assets. It is quite conceivable that an effective Intelligence, Surveillance, and Reconnaissance (ISR) effort could result in TST's queued for hours, waiting for a strike package not already tasked against an even better TST.[12]

The discovery and queuing process is normally handled by an organization within the AOC (usually the Combat Operations Division or a dedicated TST Cell), which will use its own internal processes to complete the Find, Fix, Track, Target, Engage, and Assess (F2T2EA) cycle. These operational-tactical processes can be extraordinarily complex, and some will bear directly on the JFC's decisions, but a full exploration of this process is beyond the scope of this paper.[13]

The point of this timing discussion is not to elaborate on every option available for attacking TST's, which could include aircraft, as mentioned, ATACMS, MLRS, cruise missiles, etc. Rather, it is to clarify that the terms "time-sensitive" and "immediate" do not automatically mean a target requires destruction within minutes, and that, in some cases, an attack on a TST may not occur for hours, or even days. The category "TST" merely serves to ensure the JFC's priority is conveyed to the components, which retain the ability to determine how best to attack them. In the example above, it would be a perfectly legitimate operational tactic to delay prosecuting the FOB until a suitable strike package, based on

[12] Author's experience as TST Chief, Exercise Roving Sands 2001. The TST section, in fact, maintained an "emerging target list" for potential targets that were still in the ISR F2T2 process, and a second "dynamic target queue" for targets ready for attack but awaiting assets. At one point, every available aircraft for the next 19 hours had been re-tasked against TST.

[13] Among other tasks, this process includes coordinating ISR assets to locate and identify targets, determining which weapons are appropriate, tracking the target until a suitable weapon becomes available, attacking the target, and then coordinating ISR assets again to determine whether the target was destroyed.

weapons and support, became available—perhaps the next one, perhaps not for several hours. This variable timing can easily lead to confusion in the leadership, and the JFC must be cognizant of it in order to avoid micromanaging component's tactical decisions.[14]

Partly because of this variable timing issue, some have proposed the term Time Critical Target (TCT) to identify targets which really do require destruction within minutes. The distinction, however, is somewhat artificial, as both ISR and strike assets would be identical for each set.[15] If the conceptual difference between TST and TCT is made clear, TCT could prove useful to identify targets for which certain actions are permissible, due to their especially urgent nature. TST, then, could remain high-priority targets, but with sufficient dwell-time to allow a limited amount of planning before strike. Also possible, however, is a muddled definition which serves merely to confuse the issue. If the either the staff or JFC proposes including both terms, the other must be certain what is really meant, and both must ensure the distinction adds value to the process.

Asset Availability and Tradeoffs

Ultimately, the decision required from the JFC is *how many* assets to make available for use against TST. This decision guides the next step, determining *how* the assets will be made available, which directly determines *which* assets will become available.

Determining the number of assets to be made available for TST prosecution depends on two things: 1) *the level of threat posed by the TST*, and 2) *the number of targets expected*

[14] As might be imagined, in the previous Roving Sands 2001 example, the JFC became very concerned about the long period of time from detection of TST's to prosecution, until the reasons for the delays were explained.
[15] See, for example, Combined Air Operations Center-X Innovation and Transition Plan for Time Critical Targeting Integration (Aerospace Command Control and ISR Center Strategic Forces Division (C2N), Langley, VA: 1 Jan 2001), 4. The USAF Doctrine Center, Maxwell AFB, AL, has also repeatedly injected concern over this issue in numerous doctrine publication draft reviews. Specifically, the proposed definition of "TCT," in many cases, does not contain obvious substantive differences from "TST"—including terms such as "highly fleeting," but without distinguishing how that differs from "immediate." A second difficulty is that other agencies have proposed TCT as a *process* to attack TST's—there is no resolution of this issue as of this writing.

to appear, based on Intelligence Preparation of the Battlespace/ Predictive Battlespace Awareness (IPB/PBA). Greater threat level or expected numbers implies more assets should be made available in some fashion. More assets are required for a higher threat level to ensure some will be remain available for a new target appearing shortly after prosecution of a previous one.

The tradeoff, here, is that if TST's do not appear, any dedicated air assets require backup targets. This increases the workload on tactical assets and potentially increases their risk level, since packaging and planning for a backup target will likely be less than optimum. It also increases the workload on operational planners, specifically the AOC Combat Plans Division, who must determine what the backup targets should be.[16]

Here, too, tradeoffs exist. If the selected backup targets are "low priority," and TST's do not materialize, then assets which could have hit higher priority targets instead hit lower priority ones. If backup targets are "high priority," then appearance of TST's disrupts air operations sequencing. Either way, a ripple effect occurs through the targeting process, and work spent planning backup targets is time taken away from the main effort.

While these factors argue against dedicating assets, tradeoffs occur in the other direction, too. Without dedicated assets in some form, those assets currently airborne may not have the appropriate weapons to attack TST's. Additionally, the next assets available may not be sufficiently responsive to hold the shortest-dwell targets at risk. While these may seem weak arguments in favor of dedicated assets, the most important consideration is the high priority placed on TST prosecution by the JFC.

These tradeoffs can be somewhat mitigated by the availability of US Army Advanced Tactical Missiles (ATACMS), at least for targets within ATACMS range. ATACMS offer

the ability to prosecute appropriate targets within minutes, and have proven highly effective in operational-level exercises. Using ATACMS in this manner requires clear JFC direction to Army forces in order to avoid misperceptions during TST execution.[17] Arguably, ATACMS, Conventional Air Launched Cruise Missiles (CALCM) and Tomahawk Land Attack Missiles (TLAM) are the only exception to the accepted concept of never keeping air in reserve.[18] These weapons' special capabilities and limited numbers means that their use will be carefully controlled. A question specifically requiring resolution, then, is whether ATACMS against TST targets come from a particular apportionment, such as from missiles set aside for JFACC use. Normally, the answer to this question will be no, since the JFC's intent will be to strike TST using any weapons available. However, it is important for the JFC to clarify this issue beforehand, or it may arise while attempting to prosecute a target.[19]

For the JFC to make an informed decision, the AOC must have well-developed, well-articulated operational tactics.[20] This ensures the JFC understands the implications of the decision being made, and provides the basis for the decision itself. Additionally, the JFC's commander's intent must be clear to ensure the AOC and tactical forces understand how to implement the decision. This becomes especially important for network-centric operations. Tactical forces are, as a rule, aggressive in their desire to prosecute targets. Without crystal-

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[16] Author's discussions with 8 AF Combat Plans Division during preparation for Exercise Roving Sands 2001.
[17] Eighth AF experience with ATACMS in Exercises Blue Flag 01-2 and Roving Sands 2001 found them to be highly responsive and especially easy to coordinate, once the JFC made clear his policy that any organization with an asset capable of prosecuting a TST was to make it available to the TST Cell, regardless of number requested. See also Joint Pub 3-60, Joint Doctrine for Targeting, B-10.
[18] LTC Phillip Smith, 8 AF Chief of Strategy. Conversation with the author. The concept of an air reserve is one of the areas in which many air strategists vehemently disagree with COL (Ret.) John Warden.
[19] 1st BCD stresses the importance of coordination beforehand to avoid misperceptions that the JFACC could be using more ATACMS than allocated when prosecuting TST. Conversation with 1st BCD personnel during Exercise Blue Flag 01-2.
[20] These include not only operational tactics within the TST organization, which are designed to complete the F2T2EA process, but also for that organization's interface with the rest of the AOC when a recommendation is made to assign an attack to missions in the following day's ATO.

clear guidance, they may not pause to consider whether the first target they find is actually the best use of limited assets.[21]

Choices

One appropriate venue for presenting and reviewing TST guidance is the Joint Targeting Coordination Board (JTCB), assuming the JFC has chosen to implement one. Prior to hostilities, if possible, the AOC Strategy Division should present proposed methodologies for TST prosecution as part of the JFC decision process for apportionment categories. There, the tradeoffs can be illustrated between providing separately apportioned TST assets versus directing the AOC to divert assets already planned against Joint Integrated Prioritized Target List (JIPTL) targets.

An existing tool, the Air Operations Directive (AOD), can be useful for this purpose. The AOD is a document created by the JFACC (specifically, by the AOC Strategy Division) and approved by the JFC at the JTCB. Part of the JFACC's Daily Guidance, the AOD contains an overall statement of the objectives to be achieved in the current phase and a prioritized list of target types, with the specific tactical objective for each (destroy, neutralize, etc.). The approved AOD provides the guidance necessary for the AOC to craft the JIPTL, which is then presented for approval at the next day's JTCB. Since TST's are simply target types, the AOD thus automatically places various TST's in priority order relative to each other and to targets on the JIPTL. The approved AOD is essentially a statement of understanding between the JFC and JFACC as to target importance.[22] This statement can

[21] Author's personal experience with live-fly assets in Exercise Roving Sands 2001. Even given specific guidance on acceptable targets and with airborne alert assets specifically dedicated to that role, neither ISR assets nor strike aircraft wanted to bypass legitimate, but low-priority, targets in favor of waiting for TST's to emerge.

[22] LTC Robert Gass, briefing to JFACC liaisons to JTF 760 headquarters (Joint Training and Simulation Center, Suffolk, VA), Exercise Roving Sands 2000. 11 June 2000.

then be used by the AOC during TST prosecution to compare the TST with any JIPTL target's priority when determining which ATO missions to utilize.

At the JTCB, the Strategy Division ensures, as part of the apportionment decision, that the JFC clearly identifies how priorities should shift if ISR is surprisingly effective and more TST's are located than originally expected from the IPB/PBA. Specifically, the Strategy Division presentation must guide the JFC through several questions: Which sorties should shift? Which apportionment categories may be used (e.g. CAS, or only Interdiction)? Are apportionment categories even useful in conveying the JFC's intent? For example, Scud hunting is doctrinally Offensive Counterair (OCA), but many OCA sorties will be air-to-air. The JFC might simply identify categories that cannot be diverted.

Additionally, the JFC must provide guidance for re-tasking ISR assets. If the JFACC has been granted Reconnaissance and Sensor Tasking Authority (RSTA), the JTCB may be a sufficient forum for this decision. If RSTA is retained at the JTF, then the J-2 staff must be more closely involved. The Intelligence Correlation and Synchronization Board (or equivalent) may be a more appropriate forum, in that case. Regardless, AOC personnel must clearly understand which assets may be re-tasked, and to what extent—e.g. whether requests for collection will simply be placed in the asset's collection "deck" with appropriate priority, or whether the AOC can move the entire platform (such as for Predator). The requirement to directly task sensors and platforms for TST prosecution will likely be a major argument to delegate RSTA to the JFACC. This problem is especially significant since current ISR assets cross-cue each other, requiring TST operators to task multiple platforms to obtain decision-quality information.

In implementing the JFC's guidance, the Strategy Division must understand, even if it disagrees with, the JFC's perception of the threat posed by various TST's.[23] Additionally, the JTF staff must understand, even if they disagree with, the JFC's priority to be placed on TST. At the JTF level, this generally becomes more of an issue for ISR when the J-2 retains control of collection.[24]

Ensuring that all parties completely understand the JFC's intent allows the AOC and JTF to shift weights of effort for attack and intelligence in accordance with the JFC's true wishes. This remains possible even if the new weight of effort falls outside the original, JTCB-preplanned, targeting guidance for the currently executing ATO period. Conveying such intent is not traditionally part of the AOD, but could be added.

Similar to the ISR issues, there are other required JFC decisions for which the JTCB may not be the appropriate forum. Specifically, even with a clear commander's intent, the AOC should be given guidance regarding what authority it is granted to modify the ATO outside the original JTCB guidance. Also, the AOC should be told when it must seek further approval for changes which shift the weight of effort away from the original plan, and at what level this approval must be obtained.

This is not a minor concern—the very existence of the JTCB and other fires elements at the JTF level is due, in part, to other components' concern that the JFACC may not be appropriately receptive to either their inputs or the JFC's direction.[25] An obvious option is to delegate this authority to the JFACC, as this allows greater responsiveness. However, in

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[23] During Exercise Roving Sands 2001, there was extensive discussion between TST and Strategy personnel regarding the actual threat posed by TBM's versus the weight of effort placed on attacking them. The overriding factor was the perception held by the JFC, who directed every possible sortie be diverted to TST.
[24] GEN John Jumper, then Commander, Air Combat Command, at the 2000 USAF Weapons and Tactics Conference, Nellis AFB, NV, in a discussion of his experiences in Operation Allied Force.
[25] COL Michael T. Probascu, Joint Force Air Component Commander or Coordinator? (Unpublished Research paper, Air War College, Maxwell AFB, AL: 1994) 6.

obtaining this authority, the JFACC must then be particularly sensitive to misperceptions that certain ATO changes are slighting another component's target nominations.

Assuming the authority to make changes is delegated, the question then becomes whether it can be further delegated. The JFACC is not always readily available (he may even be in meetings with the JFC), and the deputy may be a coalition member, raising potential security concerns. Can the authority to significantly change ATO targeting be delegated to the AOC Director, or even the Combat Operations Division commander? Again, these are not idle questions—the JIPTL is approved by the JFC, meaning either the JFC must approve changes or the authority level to do so must be specified.

Decisions

In general, it is probably unnecessary to specifically apportion assets for use against TST, for reasons which should become clear. There are exceptions, however.

First, if the predictability of a target appearing is extraordinarily high, it is common practice to assign airborne alert assets to attack it, whether a TST or other target. While the "classic" use of airborne alert is for interdiction sorties (a mission type nicknamed "X-INT"), the same operational tactics can be applied against TST.[26]

Second, if the risk posed by a TST is extraordinarily high, such as from deployed chemical warheads, the loss of effective air sorties may be deemed an acceptable risk in order to ensure proper weapons are always available.

Third, if a particular asset especially suited to TST prosecution is available, the JFC might require some be apportioned for that purpose. In the case of ATACMS, the land component commander could be required to hold some missiles in reserve.

Even if dedicated apportionment is chosen, however, additional TST's may appear which exceed the capability of the apportioned assets. Therefore, secondary plans, such as diverting assets, will still be required. Thus, apportioning dedicated assets does not simplify the problem for the AOC, nor does it reduce the workload.

There is an additional problem. Although TST's are, by definition, high priority targets, different TST's may have different priorities.[27] This priority could be based on either piece of the TST definition—the level of danger posed by the TST or the level of payoff. Even within target sets, both pieces must be considered. In the TBM example used here, does the elevated TEL have greater priority, because of the imminent nature of the threat, or does the FOB have greater priority, because of the greater overall payoff?

This reintroduces the AOD as a vehicle to relay the JFC's guidance to the AOC and tactical forces. An advantage of using the AOD is that it is an existing document, with a well-established process surrounding it. Since priorities associated with TST versus any other targets are naturally identified for everyone concerned, the AOD can provide a convenient reference for the operational staff to use when directing tactical forces. Important considerations remain, however.

The first concern is that the target listing may not be broken down to the necessary level of detail to distinguish between various target types within a given target set—TEL's versus FOB's, for example. In the guidance, the JFC may need to specifically answer the

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[26] COL (Ret.) Hugh E. Smith and MG (Ret.) John A. Corder, Tactics, Techniques and Procedures Manpower and System Requirements for Time Critical Targeting in JEFX-2000., Version 6.1, 2 Aug 2000, (Air Force Command and Control Training and Innovation Group, Hurlburt Field, FL), 13-14.

[27] This point is not commonly addressed in TST discussions, the unstated assumption being that all TST's are the number one priority. Using the AOD to prioritize targets shows clearly that different priorities do exist, and all TST's are not tied for first place. Conversely, the inclusion of a TCT subset as TST "with the JFC's highest priority" acknowledges the problem exists, but may simply move the tie from TST to TCT. See, for example, Concept of Operations for Time Critical Targeting (TCT) during Joint Expeditionary Force Experiment (JEFX) –2002, Version 2.3 (AC2ISRC/C2NT: 24 Jan 2001), 4.

question posed above—should higher priority be placed on risk or opportunity, and are there exceptions to that rule?

Second, acceptable and unacceptable actions need to be stated precisely. For example, may all apportionment boundaries be crossed, or just certain ones? Given that even TST's have varying priorities, may the boundaries be crossed against all TST's? Such information is not normally included in the AOD, and the JFC may choose to relay this decision in another manner, such as through a separate fragmentary order (FRAGO). However, there is an obvious "one-stop shopping" advantage to incorporating it in the AOD.

Third, what about assets not assigned to specific target types, such as CAS? Here, the AOD becomes less useful for straight comparisons, since CAS missions may attack several different target types. It is important they are not preferentially diverted to TST on the assumption a particular mission will attack targets lower in the AOD listing. Equally important is ensuring such missions are not preferentially excluded from TST, if that goes against the JFC's intent.

Such details may seem too "tactical" for the JFC to consider, and the JFC should certainly allow the JFACC staff to draft the guidance. Yet, only the JFC can say whether such guidance actually meets his intent. The key point to recall is that TST prosecution essentially asks, "Which previous JFC decisions should now be ignored or changed?" Only the JFC can answer that question. Further, it is likely the JFC's answers will change as the operation progresses, events unfold, and working relationships develop. Hence the value of identifying both a daily venue for examining such changes, the JTCB, and a tool for implementation, the AOD.

Fourth, the AOD must address whether missions on airborne alert for other targets should have special considerations associated with being re-tasked against TST. The obvious argument in favor of doing so is that the alert asset's expected target may not appear, therefore it should be sent after the TST now present. There is also a strong argument against doing so. Airborne alert is generally inefficient, as outlined earlier. To merit dedicated airborne alert assets, a target must be unusually lucrative, therefore its assets may be the least desirable to divert. A logical solution is for the Strategy Division to make recommendations on use of these sorties during the JTCB, as their particular status may change daily. This has the added advantage of ensuring all parties understand the planned mission of the airborne alert assets, ensuring no one is lulled into believing they are simply an airborne reserve.

Finally, the JFC should ensure the JFACC staff identifies an AOC process to prosecute TST's which do not require "minutes" response, such as making a late change to the next day's ATO. The purpose of doing so is *not* to micromanage the JFACC, but to clarify the command and control procedures. Changes to the approved target list require authorization, and identifying the process to be used ensures the proper authorization is identified and obtained.[28] The JFC, in all likelihood, will not be interested in the particulars of the AOC operational process, but merely the proposed method for obtaining necessary approval. Potentially, such changes to the next day's ATO could be briefed at the JTCB, since it is common practice to back-brief that ATO's Master Air Attack Plan (MAAP) there, as well.[29]

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[28] Such a process was not clearly outlined during Exercise Roving Sands 2001, and led to significant friction between TST functions and the ISR Division Targets Branch. A solution was eventually implemented at the suggestion of Mr. Mark Ballard of the Command and Control Training Innovation Group (C2TIG), Hurlburt Field, FL.

[29] LTC Rob Gass, briefing to JFACC liaisons to JTF 760 headquarters, 11 Jun 2000. Briefing the MAAP is generally viewed as a courtesy, to remind the JFC of "tomorrow's" actions before moving on to "tomorrow + 1" (for JIPTL approval) and "tomorrow +2" (for AOD approval), which are the substance of the JTCB.

In summary, the recommended process is a flexible "divert" system, in which the JFC presents guidance on *which* assets to divert using the JFACC's AOD. Amplifying information in the AOD, in conjunction with the JIPTL, guides the operational staffs in assessing which assets can best be spared from their primary tasks when sufficient time is available for such consideration. The prioritization of missions naturally solves the question of *how many* assets, since no preset number must be identified. Identifying the execution and approval process answers the question of *how* the assets will be assigned.

Considerations for Network-Centric Operations

One question of particular interest is whether and how any of these recommendations change in a network-centric environment. During Fleet Battle Experiment-India (FBE-I), the US Navy sought to examine parts of this question. The US Air Force conducted similar research during Joint Expeditionary Force Experiment (JEFX) 99 and 2000. FBE-I has been held, by some, as vindication for the network-centric concept in prosecuting TST. The results from JEFX, while similar, have had varying interpretations.

FBE-I and JEFX clearly demonstrated what has been shown in exercise after exercise: given a set of guidelines, tactical forces can locate and destroy targets in a "self-synchronized" manner. FBE-I, however, was designed to examine if such a joint-fires process was possible, not whether it resulted in the "best" use of assets. Virtually every question about asset allocation, priorities, and limited resources were assumed to be outside the scope of the exercise.[30]

JEFX, similarly, was interested in the process of locating and destroying "time-critical targets," among other initiatives. While it emphasized the need for sensor-tasking

[30] LCDR Erik Burian, Naval Warfare Development Center, Newport, RI, author of FBE-I Fires CONOPS, interview by author, 16 Nov 2001, Naval War College, McCarty-Little Hall, Newport, RI.

authority to tighten the TST "kill chain," it, too, assumed the requisite approvals were already in place.[31] In both situations, these were entirely acceptable scenarios, but their in-going assumptions should be understood when examining the lessons to be learned.

Commander's guidance, in fact, is central to the concept of network-centric warfare (NCW).[32] Thus, the task facing the JFC, illustrated here, does not simply vanish in a network-centric construct. If anything, the tasks outlined become *more* critical in NCW, as operational commanders and staffs must be absolutely certain that the guidance given to tactical forces is not only clearly understood, but can be implemented. For example, the AOD recommendations in this paper assume comparison with a JIPTL to determine whether a particular ATO sortie should be diverted. If, in an NCW setting, no JIPTL is available, then tactical forces may have only the guidance in the AOD with which to make their decisions.

Conclusion

The demands on the JFC's time are immense, and some would argue technology has allowed the JFC to become too preoccupied with the TST problem.[33] Yet, commanders in both exercises and operations remain keenly interested in these threats. Certainly, the implied potential for a TST to become a "war-loser" has led to some of this interest, whether the TST does so due to military, political, or coalition effects. Regardless of the reason, however, the fact remains that the interest is there.

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[31] William B. Scott, "Experimental Center Nails Time-Critical Targets," Aviation Week and Space Technology, 14 (Oct 2, 2000): 70-72

[32] A point emphasized in the Network-Centric Warfare course at the Naval War College, Newport, RI.

[33] The USAF argued exactly when it non-concurred with JFCOM's 1997 Attack Operations Against Critical Mobile Targets document, which proposed placing a TST Cell at the JTF headquarters. The argument against doing so was that it would draw the JFC into tactical-level decision making, violating the tenet of centralized control but decentralized execution.

Acknowledging this reality, this paper has sought to focus the discussion between JFC and JFACC staffs regarding the most appropriate way to deal with the TST problem. It has outlined the essential problems facing the JFC, the operational staffs, and the tactical forces tasked with carrying out the commander's intent, and provided the JFC with concrete options to consider when determining how to organize against the threat. The options presented, of course, are not all-encompassing; rather, the intent has been to outline the questions that need to be asked by both commanders and staffs. The suggested answers, while fairly specific, seem to apply across the range of threat and technology.

The answers presented may seem somewhat "prescriptive" in nature; this is intentional. Too often, examinations of the TST topic attempt to include every possibility in definitions, processes, and decisions.[34] In doing so, they become too generic to be useful and often end with bland, unhelpful recommendations. The knowledgeable reader will, no doubt, think of plausible exceptions to the suggestions presented here; the same reader, hopefully, will also recognize the recommendations' usefulness in outlining at least a subset of the possibilities.

Whether components and services believe the JFC should be involved in the TST process is not the issue. JFC's have shown a continuing interest in the topic; the questions to be asked are how should TST priorities be set, and how should those priorities be relayed to the operational and tactical echelons? A flexible divert system, coupled with a carefully detailed AOC process and well-articulated command authorities, appears to offer the best solution to this problem, while ensuring air operations remain both efficient and effective.

[34] See, for example, Combined Air Operations Center-X Innovation and Transition Plan for Time Critical Targeting Integration and Concept of Operations for Time Critical Targeting (TCT) during Joint Expeditionary Force Experiment (JEFX) –2002.

APPENDIX A
SAMPLE PARTIAL AIR OPERATIONS DIRECTIVE

AOD contents normally include restated mission, situation, commander's intent, and concept of aerospace operations for the current phase. Concept of operations includes Priority Intelligence Requirements (PIR), and prioritized operational objectives, along with their apportionment weight of effort. Finally, as part of the concept of operations, a summary of prioritized tactical objectives supporting the operational objectives is presented in priority order, along with task descriptions, measures of effectiveness (MoE), and Designated Time of Completion (DToC). This is partially reproduced below.

[Prioritized task list for target nominations—used to weight JIPTL selection.]

Pri	Tac Obj or Task Description	Measure of Effectiveness	DToC
	[Broad categories listed alphabetically along with DToC]		
1A	Neutralize airfields basing aircraft capable of attacking coalition territory		NLT C+46
1B	Neutralize western IADS C2 links and nodes		NLT C+47
1C	Destroy SAMs impacting coalition operations		EOP
1D	Degrade TBM forces in range of coalition territory or forces		NLT C+55
1E	Preserve coalition space-based capability		EOP
	[Subcategories listed in priority order, which may change daily, along with MoE.]		
1B1	Destroy ADOC	Non-mission capable	
1B2	Destroy two SOCs	Non-mission capable	
1A1	Neut. airfields basing MiG-29s	No offensive sorties	
1B3	Destroy or neut. 5 western SOCs	Non-mission capable	
1D1	(T) Destroy No Dong TELs	No effective launches	
1A2	Neutralize airfields basing Su-24s	No offensive sorties	
1D2	(T) Destroy Scud C/C+ TELs	Less than 2 eff. launches/day	
1C1	Neut. fixed SAM ivo TBM FOBs	No effective launches	
…			
1D3	(T) Attrit Scud B TELs	Less than 3 eff. launches/day	
1D4	Destroy logistical support equip.	No successful reloads	
…			
	[Second priority broad categories, again followed by subcategories.]		
2A	Deny effective C2 of fielded forces		EOP
2B	Degrade Enemy will with PSYOPS and deception		EOP
2C	Deny use of enemy IIW/IW systems		EOP
2D	Defend coalition systems		EOC
2A1	Disrupt national C2 systems	Observed C3 traffic decreases	
2A2	Disrupt strategic/tactical IADS	Observed C3 traffic decrease	
…			

Additional Guidance. *[Presented for the ATO under consideration.]*

…

Time Sensitive Targets (TST). Approved TST tactical tasks are annotated with a (T).

For retasking, TST priority is established by its AOD tactical task priority.

If a TST is critical to the execution of a current operation, it has highest priority.

TLAM/CALCM/ATACM. CFACC allotted 48 TLAM, 32 CALCM, and 5 ATACMS/day.

XINT package of four attack aircraft will be available per 4 hour period against expected I Corps movement.

XCAS packages of two aircraft will be available per 2 hour period.

[Guidance would normally be briefed to JFC at JTCB by Strategy Division representatives.]

[Above example based on Exercise Roving Sands 2001 AOD for Phase III, ATO A.]

SAMPLE ADDITIONAL GUIDANCE

(as suggested by "Choices" and "Decisions" sections)

Economy of force does not permit apportioning dedicated TST assets. AOC will use approved divert system based on AOD priority. *[JFC guidance to clarify no assets are "solely" dedicated to TST.]*

Any interdiction or push CAS mission may be diverted to TST, commensurate with AOD priority list. *[Guidance appropriate from JFC—in the above example, this would not divert assets from theater Counterair operations, critical SEAD, or pull CAS.]*

Consider airborne/ground alert missions nearing end of vulnerability period first for TST tasking. *[Strategy Division might recommend this as default. JFC could confirm or direct airborne assets be diverted first.]*

Enemy WMD use is not expected. Therefore, TST are high priority, but not the only priority. *[Essential guidance from JFC, which would suggest to JFACC what weight of effort to shift, for example, to a single TEL or small FOL vs. a large preplanned interdiction target.]*

When necessary, give precedence to more lucrative targets, even if less immediately threatening. *[Given the above example that WMD use is not expected, this would suggest bypassing a loaded TEL in order to strike a FOB.]*

ATACMS used against TST do not come from JFC daily apportionment to JFACC. *[Clarifies whether the above daily limit of five ATACMS applies to TST.]*

Sample Guidance for ISR Assets

AOC may reposition [ISR asset] as required for TST prosecution, with the caveat that [specific collection deck requirements] remain met.

AOC is to make priority requests for collection requirements on TST from [ISR asset] to JTF J-2 using AOD priority listed.

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